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SABERTOOTH Z77

The ultimate thermal solution for Intel® Z77 motherboards with Thermal Armor and Thermal Radar

- LGA1155 Intel® 3rd/2nd Generation Processors Ready
- TUF Thermal Armor - Total Airflow-Boosting Heat Dissipation
- TUF Dust Defender-Repel the Dust, Expand the Lifespan
- TUF Thermal Radar - Real Time Temp. Detection and Heat Removal
- TUF Components [Choke, Cap. & MOSFET; Certified by Military-standard] - Certified for Tough Duty
- New DIGI+ Power Control - All-New Digital Power Control for both CPU and DRAM

TUF /tʌf/, stands for The Ultimate Force.

The TUF series delivers a “tough” image. With the unique design & high quality components (military-standard), TUF series is born for pursuing the preeminent stability, all-round compatibility, and extreme durability

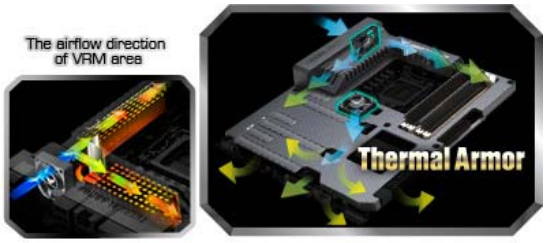
THE ULTIMATE FORCE

"Ultimate COOL!" Thermal Solution

Thermal Armor

Total Airflow-Boosting Heat Dissipation

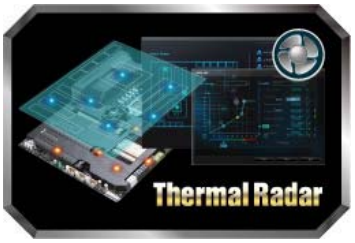
New generation Thermal Armor boosts cooling with dual turbo fans, enhancing the original TUF thermal design and helping direct hot air away from components and the motherboard via smart shunt funneling. It covers the entire board with more powerful airflow, and uses special heat pipes to expedite thermal removal and make sure temperatures stay low. The dedicated I/O cover fan draws additional cold air in and expels even more heat for improved stability, plus new Thermal Armor comes with special convection holes in the PCB to facilitate underside airflow. It now sports a cool military-themed style, perfect for case modders.



Thermal Radar

Real Time Temp Detection and Heat Removal

Thermal Radar monitors temperatures in critical parts of the board, automatically adjusting fan speeds for better system stability. Fan Overtime keeps fans working in critical minutes post shutdown to extend component lifespan, dropping temperatures by 7˚C in just ten minutes after the computer turns off. New Fan Off consists of a switch that disables fans should temperatures drop below a manually or automatically set level for effective power consumption.



"Safe & Stable!" Guardian Angel

Dust Defender

Repel the Dust, Expand the Lifespan

Dust particles and environmental contamination present a constant hazard to the optimal functioning of slots and connectors. Build up on contact points within slots compromises data transfer over time, negating the benefits of expensive and critical components such as graphics cards. Custom TUF design keeps this in mind with special shields that resist particulate entry, effectively extending slot and connector lifespan while promoting better performance.

ESD Guards

Unique protection of motherboard components from unexpected electrostatic discharges (ESD)
Electrostatic discharge (ESD) can happen suddenly and its damaging effects is often underestimated. Exclusive ASUS anti-static chip, a protective circuit design, and the I/O shield provides four times better protection to extend component lifespan.

"TUF ENGINE!" Power Design

New DIGI+ Power Control

Leading digital power control solution with the best quality
New DIGI+ Power Control include multiple digital voltage controllers, allowing ultra-precise modulation and tuning for CPU, iGPU, and DRAM. This innovative and industry-leading ASUS technology provides an extremely accurate voltage tuning for better efficiency, stability, and performance. With the next generation Intel®VRD 12.5 future power design, CPU wattage can be decreased by half, creating a cooler and quieter PC. This innovation of industry-leading ASUS technology provides the smartest control for better power saving scenarios.

UEFI BIOS

Flexible & Easy BIOS Interface
Full-scale Performance Tuning with Easy BIOS Interface
Media-renowned UEFI BIOS offers the first mouse-controlled graphical BIOS designed with selectable modes and native support for hard drives over 2.2 TB. Users can also drag and drop boot priorities with the exclusive EZ mode, while Advanced Mode offers intricate settings.

New upgrade! Quick and easy info for enhanced system control
- F12 BIOS snapshot hotkey
- F3 Shortcut for most accessed info
- ASUS DRAM SPD (Serial Presence Detect) info, detecting faulty DIMMs and helping with difficult POST situations

TUF Components (Choke, Cap. & MOSFET; Certified by Military-standard)

Certified for Tough Duty
Get rugged performance even in the most challenging conditions with robust TUF chokes, solid capacitors, and MOSFETs--certified through third-party, military-grade testing. TUF Chokes, also known as the “Alloy Choke”, is a made of a compound of various types of metal instead standard iron, enables the support of up to a massive 40A of rated current, 25% higher than conventional component. Furthermore, the single piece packaing also elimates the emission of virbation noise, delivering superb charactoristics as well as durability under extreme conditions.

ASUS Exclusive Features

USB 3.0 Boost

Faster USB 3.0 Transmission with UASP
New ASUS USB 3.0 Boost technology supports UASP (USB Attached SCSI Protocol), the latest USB 3.0 standard. With USB 3.0 Boost technology, a USB device's transmission speed is significantly increased up to 170%, adding to an already impressive fast USB 3.0 transfer speed. ASUS software automatically accelerates data speeds for compatible USB 3.0 peripherals without the need for any user interaction. > Click Here to Learn More

- World’s 1st USB 3.0 UASP Support – 170% faster instantly
- Complete USB 3.0 Solution – Performance boost for most USB devices
- Simple Plug & Boost – Auto detection design ensures best performance always

USB BIOS Flashback

Simple Plug & Press - Hardware-based BIOS Flashback
A truly revolutionary hardware-based update solution. USB BIOS Flashback offers the most convenient way ever to update the BIOS! It allows users to update new UEFI BIOS versions even without hardware such as a CPU or DRAM installed into the motherboard. Just plug in a USB flash drive containing the BIOS file, and press the BIOS Flashback button for 3 seconds with the power supply connected. The UEFI BIOS will then automatically update without requiring further interaction. With its new, complementary Windows application, users can regularly check for UEFI BIOS updates and download the latest BIOS automatically. Hassle-free updating for the ultimate convenience!

Network iControl

Real-time Network Bandwidth Control
With a single-click on/off button, the application currently in use has its data and network bandwidth prioritized over other programs. Moreover, you can prioritize your favorite software

easily by configuring profiles through the intuitive user interface. Within the profile, programs can be pre-scheduled to run in a specific time period to avoid network congestion and long-waits on downloads. Auto PPPoE network connection provides a one-step setup for enhanced online convenience. Overall, it's an intuitive network bandwidth control center.

USB Charger+

3X Faster Charging for All Smart Devices

With a dedicated onboard controller, quick-charge all your smart devices such as iProducts. smartphones, tablets and more, all up to 3X faster, even when the PC is powered off, in sleep or hibernation modes.

LucidLogix Virtu MVP

LucidLogix Virtu MVP

Up to 60% Hybrid Graphics Boost and 3X Faster Video Conversion

LucidLogix Virtu MVP featuring HyperFormance™ Technology boosts your discrete graphics card up to 60% beyond its original performance through the test of 3DMark Vantage. Designed for Intel® processor graphics and Windows® 7 PCs, it perfectly combines the performance of discrete graphics cards with fast computing iGPU. Also with the newly designed Virtual Sync, users can enjoy a smoother gaming experience by eliminating tearing artifacts. LucidLogix Virtu MVP could also dynamically assign tasks to the best available graphics resource, based on power, performance and system load. This allows users to fully utilize 3x faster video conversion with Intel® Quick Sync Video technology while retaining high-end 3D rendering and gaming performance, provided by both NVIDIA® and AMD graphic cards. When the discrete graphics card is not required, power consumption goes automatically down to near zero, making the system more environmentally-friendly. For users searching for perfection, LucidLogix Virtu MVP provides great graphical performance and the best flexibility and efficiency.

Up to 60% Discrete Graphics Boost and 3X Faster Video Conversion

* LucidLogix® Virtu Universal MVP™ supports Windows® 7 operating system.
** Intel® Quick Sync Video feature is supported by 3rd/2nd generation Intel® Core™ processor family.
*** System Config: OS: Windows 7 64bit SP1 | MB: P8Z77-V DELUXE | CPU: CPU-1155-QB15-2700K-3.5G-Sandy BRIDGE100-8M |DIMM: DDR3 G.SKILL 17000CL9Q-16GBZH 4GB * 4 | Lucidvirtu MVP version: V2.1.110.19997 | On-board Intel VGA Driver version: V8.15.10.2598 | ASUS GTX580 Driver version: V8.17.12.8562

CPU, Chipset and Graphics features

LGA1155 Intel® 3rd/2nd Generation Processors Ready

This motherboard supports Intel® 3rd generation Intel® Core™ processor-based platform and 2nd generation Core™ i7/i5/i3/Pentium®/Celeron® processors, with iGPU, memory and PCI Express controllers integrated to support onboard graphics output with dedicated chipsets, 2-channel (4 DIMM) DDR3 memory and 16 PCI Express 3.0/2.0 lanes. This provides great graphics performance. Intel® 3rd generation Intel® Core™ processor-based platform and 2nd generation Core™ i7/i5/i3/Pentium®/Celeron® processors are among the most powerful and energy efficient CPUs in the world.

Intel® Z77 Express Chipset

The Intel® Z77 Express Chipset is a single-chipset design to support socket 1155 Intel® 3rd generation Intel® Core™ processor-based platform and 2nd generation Core™ i7/i5/i3/Pentium®/Celeron® processors. It provides improved performance by utilizing serial point-to-point links, allowing increased bandwidth and stability. Additionally, Z77 chipset provides 4 USB 3.0 ports for 10 times faster data retrieval speed. Moreover, Intel® Z77 Express Chipset can also enable iGPU function, letting users enjoy the latest Intel® integrated graphic performance.

PCIe 3.0 Ready

PCI Express® 3.0 (PCIe 3.0) is the latest PCI Express bus standard with improved encoding schemes that provide twice the performance of current PCIe 2.0. Total bandwidth for a x16 link reaches a maximum of 32GB/s, double the 16GB/s of PCIe 2.0 (in x16 mode). As such, PCIe 3.0 provides users unprecedented data speeds, combined with the convenience and seamless transition offered by complete backward compatibility with PCIe 1.0 and PCIe 2.0 devices. PCIe 3.0 will become a must-have feature for users who wish to improve and optimize graphic performance, as well as have the latest technology available to them.

* PCIe 3.0 speed is supported by Intel® 3rd generation Core™ processors.

Quad-GPU SLI and Quad-GPU CrossFireX Support!

Flexible Multi-GPU Solutions, Your Weapon of Choice!

SABERTOOTH Z77 brings you the multi-GPU choice of either SLI™ or CrossFireX. The motherboard features the most powerful Intel® Z77 platform to optimize PCIe allocation in multiple GPU configurations. Expect a brand-new gaming style you've never experienced before!

Intel® Smart Response Technology

SSD Speed with HDD Capacity

Intel® Smart Response Technology boosts overall system performance. It uses an installed fast SSD (min 18.6GB available capacity required) as a cache for frequently accessed data. Key benefits include reduced load and wait times, and lower power consumption through the elimination of unnecessary hard drive spin. This technology combines SSD performance with hard drive capacity, operating up to 6X faster than a hard drive-only system.

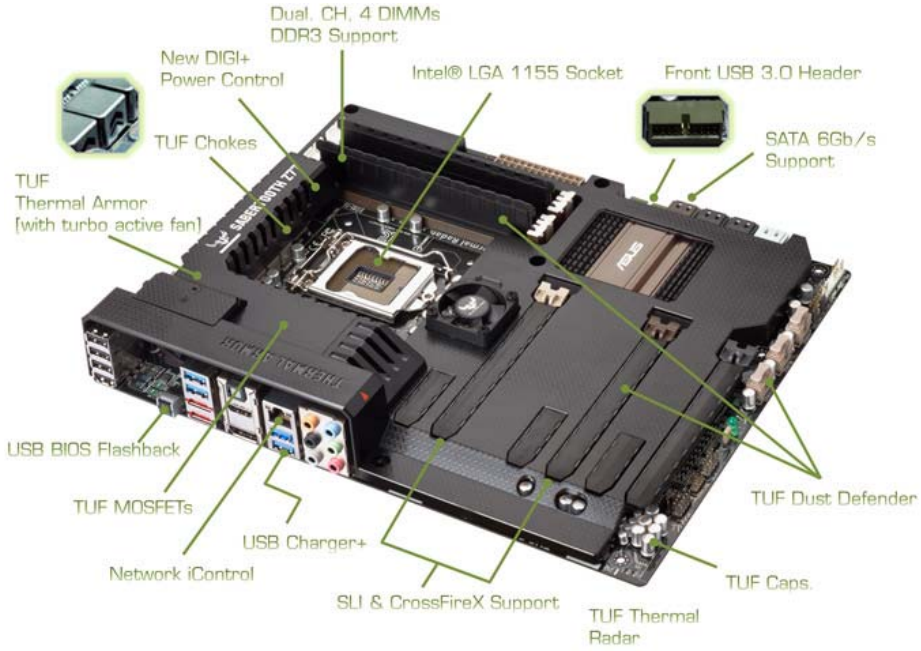
Intel® Smart Connect Technology

Auto Application Refresh. Less Waiting Time
Your computer can receive web updates with fresh content for selected applications, even when the system is in sleep mode. This means less time waiting for applications to update and sync with the cloud, leading to a more efficient computing experience.

Intel® Rapid Start Technology

Instant Awake your PC from Sleep Mode
Allows your computer to quickly resume from a low-power hibernate state in seconds. Saving your system memory to the designated SSD, it provides your computer a faster wake-up response time, while still keeping the energy use low.

SABERTOOTH Z77 Product Overview



Guaranteed Service

5 Year Warranty

The ultimate reliability of TUF Series is not only based on advanced thermal design, military-standard components and strict reliability tests, but also on the 5 Years Warranty* which is proudly provided.

* This service will follow the local standard and service policy.
** This service only covers failures or malfunctions that occur during the warranty period and under normal use conditions, as well as any material or workmanship defects.

HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

Specifications

CPU	Intel® Socket 1155 for 3rd/2nd Generation Processors Supports Intel® 22 nm CPU Supports Intel® 32 nm CPU Supports Intel® Turbo Boost Technology 2.0 * The Intel® Turbo Boost Technology 2.0 support depends on the CPU types.
Chipset	Intel® Z77
Memory	4 x DIMM, Max. 32GB, DDR3 MHz Memory Dual Channel Memory Architecture Supports Intel® Extreme Memory Profile (XMP) * Hyper DIMM support is subject to the physical characteristics of individual CPUs. * Refer to www.asus.com or user manual for the Memory QVL (Qualified Vendors Lists).
Graphic	Integrated Graphics Processor Multi-VGA output support : HDMI/DisplayPort ports - Supports HDMI with max. resolution 1920 x 1200 @ 60 Hz - Supports DisplayPort with max. resolution 2560 x 1600 @ 60 Hz Maximum shared memory of 1696 MB Supports Intel® HD Graphics, InTru™ 3D, Quick Sync Video, Clear Video HD Technology, Insider™
Multi-GPU Support	

	Supports NVIDIA® Quad-GPU SLI™ Technology Supports AMD Quad-GPU CrossFireX™ Technology Supports LucidLogix® Virtu™ MVP Technology *1
Expansion Slots	2 x PCIe 3.0/2.0 x16 (x16 or dual x8) *2 1 x PCIe 2.0 x16 (x4 mode, black) *3 3 x PCIe 2.0 x1
Storage	**Intel® Z77 chipset :** 2 x SATA 6Gb/s port(s), brown 4 x SATA 3Gb/s port(s), black Support Raid 0, 1, 5, 10 Supports Intel® Smart Response Technology, Intel® Rapid Start Technology, Intel® Smart Connect Technology *4 **ASMedia® ASM1061 controller :** *5 2 x SATA 6Gb/s port(s), gray 2 x eSATA 6Gb/s port(s), red
LAN	Intel® 82579V, 1 x Gigabit LAN Controller(s)
Audio	Realtek® ALC892 8-Channel High Definition Audio CODEC - Supports : Jack-detection, Multi-streaming, Front Panel Jack-retasking **Audio Feature :** - Absolute Pitch 192kHz/ 24-bit True BD Lossless Sound - Blu-ray audio layer Content Protection - Optical S/PDIF out port(s) at back panel
USB Ports	**Intel® Z77 chipset :** *6 4 x USB 3.0 port(s) (2 at back panel, blue, 2 at mid-board) **ASMedia® ASM1042 controller :** *6 2 x USB 3.0 port(s) (2 at back panel, blue) **Intel® Z77 chipset :** 10 x USB 2.0 port(s) (4 at back panel, black, 6 at mid-board)
Special Features	**TUF ENGINE! Power Design :** - 8 +4 +2 Digital Phase Power Design - TUF Components (Choke, Cap. & MOSFET; certified by military-standard) - ASUS DIGI+ Power Control Utility **Ultimate COOL! Thermal Solution :** - TUF Thermal Armor - TUF Thermal Radar **Safe & Stable! Guardian Angel :** - Dust Defender **ASUS Exclusive Features** : - USB BIOS Flashback - MemOK! - AI Suite II - USB Charger+ - Anti-Surge - ESD Guards - ASUS UEFI BIOS EZ Mode featuring friendly graphics user interface - Network iControl - USB 3.0 Boost **ASUS EZ DIY :** - ASUS O.C. Profile - ASUS CrashFree BIOS 3 - ASUS EZ Flash 2 - ASUS MyLogo 2 - Multi-language BIOS **ASUS Q-Design :** - ASUS Q-Shield - ASUS Q-LED (CPU, DRAM, VGA, Boot Device LED) - ASUS Q-Slot - ASUS Q-DIMM - ASUS Q-Connector
Back I/O Ports	1 x DisplayPort 1 x HDMI 2 x eSATA 6Gb/s 1 x LAN (RJ45) port(s) 4 x USB 3.0 4 x USB 2.0 1 x Optical S/PDIF out 6 x Audio jack(s) 1 x USB BIOS Flashback Button(s)
Internal I/O Ports	1 x USB 3.0 connector(s) support(s) additional 2 USB 3.0 port(s) (19-pin, moss green) 3 x USB 2.0 connector(s) support(s) additional 6 USB 2.0 port(s) 4 x SATA 6Gb/s connector(s) 4 x SATA 3Gb/s connector(s) 1 x CPU Fan connector(s) (4 -pin) 1 x CPU OPT Fan connector(s) (4 -pin) 4 x Optional Fan connector(s) (4 -pin) 2 x Assistant Fan connector(s) (3 -pin)

	1 x S/PDIF out header(s) 1 x 24-pin EATX Power connector(s) 1 x 8-pin ATX 12V Power connector(s) 1 x Front panel audio connector(s) (AAFP) 1 x System panel(s) (Q-Connector) 1 x MemOK! button(s) 1 x Clear CMOS jumper(s)
Accessories	User's manual Accessory Guide ASUS Q-Shield 2 x SATA 3Gb/s cable(s) 2 x SATA 6Gb/s cable(s) 1 x SLI bridge(s) 1 x Q-connector(s) (2 in 1) 2 x Accessory Fan(s) (35 mm) 1 x TUF Certification card(s) 1 x TUF 5 Year Warranty manual(s) (by region) 1 x TUF Inside sticker(s) **1 x Accessory Package(s):** - 1 x 40mm I/O Cover fan lid(s) - 3 x PCIe x16 slot dust cover(s) - 2 x DRAM slot dust cover(s) - 3 x PCIe x1 slot dust cover(s) - 2 x Short fan screw(s) - 4 x Long fan screw(s) - 1 x Adhesive Sponge(s) for 35mm Fan
BIOS	64 Mb Flash ROM, UEFI AMI BIOS, PnP, DMI2.0, WfM2.0, SM BIOS 2.5, ACPI 2.0a, Multi-language BIOS, ASUS EZ Flash 2, ASUS CrashFree BIOS 3, F12 PrintScreen Function, F3 Shortcut Function and ASUS DRAM SPD (Serial Presence Detect) memory information
Support Disc	Drivers Anti-virus software (OEM version) ASUS Update ASUS Utilities
Form Factor	ATX Form Factor 12 inch x 9.6 inch (30.5 cm x 24.4 cm)
Note	*1: LucidLogix Virtu MVP supports Windows 7 operating systems. *2: PCIe 3.0 speed is supported by Intel® 3rd generation Core™ processors. *3: The PCIe 2.0 x16 slot shares bandwidth with PCIe 2.0 x1_1 slot, PCIe 2.0 x1_2 slot and PCIe 2.0 x1_3 slot. The PCIe 2.0 x16 slot default setting is in x1 mode. *4: Supports on Intel® Core™ processor family with Windows 7 operating systems. *5: These SATA ports are for data hard drivers only. ATAPI devices are not supported. *6-1: Supports ASUS USB 3.0 Boost UASP Mode. *6-2: The USB 3.0 ports only support Windows® 7 or later versions.